

PATENT
Serial No. 09/989,605
Attorney Docket No. 9A01.1-100

REMARKS

Status of Claims

Claims 1, 2, 4-6, 8-52 and 54 remain pending in this application following amendment. Claims 1, 2, 4, 5, 8, 10, 41 and 48 have been amended. Claims 3, 7 and 53 have been canceled. The Applicants respectfully request further examination of the application, as amended.

Claims Allowed

Claims 16-30, 34-40 and 42-47 have been allowed by the Examiner. The Applicants wish to thank the Examiner for recognizing the allowability of these claims.

Objections to the Specification

The Examiner objects to the specification because the term "modulator" is used with regard to certain elements of the receiver. The Applicants appreciate the Examiner's point that a receiver demodulates the input signal to recover the transmitted information, not modulates it, but believes the manner in which "modulator" and "modulating" are used in the specification is correct. "Modulation," according to various technical dictionaries, is the general process whereby some characteristic of a (carrier) signal is varied in accordance with another (modulating) signal. This is the sense in which the term is used in the Applicants' specification; it is not specific to a transmitter. A modulating signal applied to, for example, a multiplier that receives an input signal, causes the multiplier to modulate the input signal. Such a modulator may be included in a receiver as well as a transmitter and in a wide range of other circuitry. In view of this definition, the Applicants believe the specification uses the term correctly and respectfully requests that the Examiner reconsider the objection.

Objections to the Claims

Claims 4, 8, 11-15, 33, 41, 49-52 and 54 have been objected to by the Examiner as depending from rejected base claims but allowable in independent form. Although the Applicants thank the Examiner for recognizing the allowability of the claimed subject matter, the Applicants have not placed the claims in independent form because it is believed the claims from which they depend are now in condition for allowance in view of the amendments and remarks discussed below.

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Claims 1-5, 10 and 41 have been objected to by the Examiner as containing informalities. The Applicants have amended claims 2, 5, 10 and 41 as required by the Examiner. With regard to claims 1, 3 and 4, to which the Examiner objects on the basis that they use the term "modulator" or "modulating" in the context of a receiver, the Applicant respectfully submit that the use is proper, as discussed above, and respectfully request that the Examiner reconsider the objection.

Rejection of Claims 1-3 under 35 USC §103(a) – Olgaard

Claims 1-3 stand rejected under 35 U.S.C. §103(a) as being unpatentable over *Olgaard* (U.S. Patent No. 6,683,919 to Olgaard, et al.). The Applicants have amended independent claim 1 to incorporate the limitations of claim 3, now canceled, but otherwise respectfully traverse this rejection.

Claim 1, as amended, recites an I/Q sampler between the first filter and the quantizer. The extra selectivity that the I/Q sampler provides to the filtered signal improves the subsequent quantization and down-conversion. The Applicants respectfully disagree that *Olgaard* discloses or suggests an I/Q sampler arranged in the circuit between a first filter and a quantizer.

The Examiner states that *Olgaard* discloses an I/Q sampler in col. 8, lines 22-61, but the Applicants respectfully submit that this portion of *Olgaard* refers only to the "data rotation circuit 16" (see Fig. 2 of *Olgaard*), which is not located between a first filter and a quantizer (e.g., analog-to-digital converter). Rather, circuit 16 is located after the conversion to baseband by the "digital down converter" (Fig. 2). In contrast, claim 1 recites that the quantizer produces "a digitized signal ready for baseband conversion." In other words, in the Applicants' invention as recited in claim 1, I/Q sampling to increase selectivity occurs before baseband conversion. Even assuming for the sake of argument that the data rotation circuit of *Olgaard* is within the broadest reasonable interpretation of an I/Q sampler that provides increased selectivity, it is not located before the baseband conversion. Therefore, this claim element cannot read on circuit 16 of *Olgaard*.

In view of the foregoing, the Applicants respectfully submit that claim 1 would not have been obvious to a person of ordinary skill in the art and respectfully request

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reconsideration of this rejection. Claim 2 depends from claim 1 and is believed non-obvious for at least the same reason.

Rejection of Claims 5-7 and 10 under 35 USC §102(b) – Olgaard

Claims 5-7 and 10 stand rejected under 35 U.S.C. § 102(b) as being anticipated by *Olgaard*. The Applicants have amended independent claim 5 to incorporate the limitations of claim 7, now canceled, and respectfully traverse this rejection on the same grounds as discussed above with regard to claim 1.

Claim 5, as amended, recites an I/Q sampler between the first filter and the quantizer. As discussed above, *Olgaard* does not disclose an I/Q sampler located in this manner. Therefore, the Applicants respectfully submit that claim 1 cannot be anticipated by *Olgaard* and respectfully request reconsideration of this rejection. Claims 6, 7 and 10 depend from claim 5 and are believed not to be anticipated for at least the same reason.

Rejection of Claim 9 under 35 USC §103(a) – Olgaard in view of Belotserkovsky

Claim 9 stands rejected under 35 U.S.C. §103(a) as being unpatentable over *Olgaard* in view of *Belotserkovsky* (U.S. Patent No. 2003/0053571A1 to Belotserkovsky, et al.). The Applicants respectfully traverse this rejection on essentially the same grounds as discussed above because claim 9 depends from amended claim 5.

Claim 5, as amended, recites an I/Q sampler between the first filter and the quantizer. As discussed above, *Olgaard* does not disclose an I/Q sampler located in this manner. Furthermore, the Applicants submit that it would not have been obvious to a person of ordinary skill in the art to have included an I/Q sampler in that location because there is no motivation in the prior art for doing so. *Belotserkovsky* does not disclose anything relevant to the present invention as recited in claim 9 other than the existence of certain wireless LAN standards, which the Applicants' specification readily admits are known in the prior art.

For a claim to be obvious in view of a combination of references, there must be some motivation in the prior art to combine their teachings. Nothing in *Belotserkovsky* relates to the novel radio architecture set forth in these claims. The Applicants do not agree with the Examiner's implication that the bare fact that these wireless LAN

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standards are known in the prior art would have been sufficient motivation in the art for a person of ordinary skill to have considered using the novel radio architecture of the present invention in a LAN operating under one of those standards. There are many radio architectures accepted in the art for use in wireless LANs, but nothing in the prior art of record appears to provide a motivation for a person of ordinary skill in the art to have considered the Applicants' architecture in those LANs; the Applicants' own teachings in this specification are, of course, not to be considered in hindsight as a potential motivation to combine references. Therefore, the Applicants respectfully submit that claim 9 would not have been obvious to a person of ordinary skill in the art and respectfully requests reconsideration of this rejection.

Rejection of Claims 31 and 32 under 35 USC §102(e) – Olgaard

Claims 31 and 32 stand rejected under 35 U.S.C. § 102(b) as being anticipated by *Olgaard*. The Applicants respectfully traverse this rejection.

The Applicants respectfully submit that *Olgaard* does not disclose "digitizing the result signal, sampling at four times the intermediate frequency," as recited in claim 31. The Examiner cites col. 2, lines 29-47 of *Olgaard* as disclosing this limitation. On lines 35-36, it is stated that the analog signal output from the filter is "digitized in analog-to-digital converter 13 (which is typically a sigma-delta analog-to-digital converter)." The Applicants respectfully submit that nothing in this statement implies the analog-to-digital converter samples at four times the intermediate frequency. On lines 42-45, it is stated that "[m]ixer 14 typically mixes the output of converter 13 with a signal proportional to $\sin(\pi/2T)$, where $1/T$ is equal to four times the second intermediate frequency" The Applicants respectfully submit that this statement not only relates to mixer 14 and not to the analog-to-digital converter 13, but also does not state or imply sampling at four times the intermediate frequency.

Thus, while the section of *Olgaard* cited by the Examiner discloses an analog-to-digital converter (that samples at some apparently undisclosed frequency) and separately discloses a mixer that involves a signal having a frequency four times the intermediate frequency, these two separate statements do not equate to digitizing by sampling at four times the intermediate frequency, as recited in claim 31. In view of the foregoing, the Applicants respectfully submit that claim 31 cannot be anticipated by

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Olgaard and respectfully requests reconsideration of this rejection. Claim 32 depends from claim 31 and is believed not to be anticipated for at least the same reason. If the Examiner maintains this rejection, the Applicants respectfully request that the Examiner identify the language within this section of *Olgaard* that the Examiner believes discloses an analog-to-digital converter that samples at four times the intermediate frequency.

Rejection of Claims 48 and 53 under 35 USC §102(b) – Olgaard

Claims 48 and 53 stand rejected under 35 U.S.C. § 102(b) as being anticipated by *Olgaard*. The Applicants have amended independent claim 48 to incorporate the limitations of claim 53, now canceled, but otherwise respectfully traverses this rejection on the same grounds as discussed above with regard to claims 1 and 5.


Claim 48, as amended, recites an I/Q sampler between the first filter and the quantizer. As discussed above, *Olgaard* does not disclose an I/Q sampler located in this manner. Therefore, the Applicants respectfully submit that claim 48 cannot be anticipated by *Olgaard* and respectfully requests reconsideration of this rejection.

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CONCLUSION

In view of the foregoing, it is respectfully submitted that all pending claims are now in condition for allowance, and the Applicants respectfully solicit allowance of application. Should there be any further questions or concerns, the Examiner is urged to telephone the undersigned to expedite prosecution.

Respectfully submitted,
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